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BINGHAM, MCCUTCHEN LLP THREE EMBARCADERO, SUITE 1800 SAN FRANCISCO, CA 94111-4067			CORRIELUS, JEAN M	
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			2162	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/086,277

**Applicant(s)**

KALUSKAR ET AL.

**Examiner**

Jean M Corrielus

**Art Unit**

2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8-13,16,17,20-22,27,32,33,36,37,40-44,48,50-58,62,63,67 and 68 is/are rejected.
- 7) ☒ Claim(s) 2,3,6,7,14,15,18,19,23-26,28-31,34,35,38,39,45-47,49,59-61 and 64-66 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to the amendment filed September 17, 2004, in which claims 1-68 are presented for further examination.

#### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-68 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Specification***

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### ***Arrangement of the Specification***

4. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.

Art Unit: 2162

- (1) Field of the Invention.
- (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

5. The specification is object because the applicant does specify which portion of the specification is the background and summary of the invention. Applicant is advised to follow the guideline illustrated above.

### *Claim Rejections - 35 USC § 112*

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(A). Claims 1, 12 and 44 also recite the claimed *"receiving a database statement from a client; determining if the database statement is optimally shareable, sub-optimally shareable, or non-shareable; searching memory for a similar database statement"*. It is important to note that present invention is directed to a method or system for sharing of execution plan for similar database statements. More specifically, two statements can be qualified as sub-optimally shareable statements if they only differ by a literal value and have very different execution plan

Art Unit: 2162

(see Applicant's specification page 11, lines 1-2). Similarly, two statements can be qualified as optimally shareable if they are likely to have the same or very similar execution plans, without significant sacrifice to perform when sharing cursors (see Applicant's specification page 11, lines 3-5). Whereas, a pair of similar statements is considered non-shareable if sharing a cursor compiled for one of the statement would produce incorrect result if shared by the other, so a such a Non-shareable statement do not share a cursor unless a complete syntax of the statements is textually identical (See Applicant's specification page 14, lines 6-19). Using the above detailed information, it is impossible to one having ordinary skill in the art to determine whether a database statement is optimally shareable, sub-optimally shareable, or non-shareable using the receiving database statement from the client when the above mentioned set forth, at least a pair of database statements is required in order to perform the execution plan for similar database statements. As detail in the specification (pages 15-17), in determining, the system and method for execution plan sharing, one must, first analyzing whether the SQL text of the two similar statement is non-shareable; second determining whether the similar SQL statements are sub-optimally shareable. If the statements are sub optimally shareable, then the cursor-sharing parameter is set to FORCE. If the statements are sub optimally shareable but cursor sharing is not set to FORCE, then a new cursor will by compiled for that SQL text. As a result the shared execution plan implements reuse by automatically replacing every SQL text literal with a bind variable

(B). Claims 1, 12 and 44 recites "searching memory for a similar database statement". It is unclear as to whether the applicant is referring to client memory or else.

Art Unit: 2162

It is also unclear as to why one having ordinary skill in the art would have to search memory for similar database statement when the step of *determining if the database statement is optimally shareable, sub-optimally shareable, or non-shareable* is already use to perform the execution plan for similar database statements.

(C. Claims 1, 12 and 44 recite “sharing a data structure in which a compiled cursor is stored”. This limitation of the preamble is not related to the embodiments of the present invention. The present invention, however, is directed to a system and method for sharing of execution plans for similar database statements. Even such limitation in the preamble the invention as claimed, but it does not tie to what set forth in the body of the claims. The body of the claims calls for a use for controlling data structure sharing. For the purpose of examination, the examiner has considered “sharing a data structure in which a compiled cursor is stored” to be -- sharing of execution plans for similar database statements--.

(D). Claims 1, 12 and 44 recite “reusing the data structure compiled for said similar database statement to execute said database statement when a system parameter is configured to control data structure sharing”. It is unclear to one having ordinary skill in the art to reuse the data structure, when the specification (page 6) makes it clear the system and method for sharing of execution plans for similar database statements overcomes the conventional system has indicated in the background of the invention by reusing the execution plan of an existing cursor in a situation where a client issues a SQL statement similar to another SQL statement previously (see specification page 6, paragraph 3).

(E). The analysis of claims 1, 12 and 44 above is also applied to claims 2-11, 13-43 and 45-57.

(F). Claim 22 recites "In a client/server computer system having a server shared memory pool for caching client SQL requests, a method for execution plan sharing comprising". This claimed language is unclear. For the purpose of examination the examiner has considered the recited "In a client/server computer system having a server shared memory pool for caching client SQL requests, a method for execution plan sharing comprising" as -- In a client/server computer system having a server shared memory pool for caching client SQL requests, a method for sharing execution plans for similar database statements comprising--.

(G). Claim 22 recites the claimed "*receiving a first SQL text from a client; determining if the first SQL text is optimally shareable, sub-optimally shareable, or non-shareable*". It is important to note that present invention is directed to a method or system for sharing of execution plan for similar database statements. More specifically, two statements can be qualified as sub-optimally shareable statements if they only differ by a literal value and have very different execution plan (see Applicant's specification page 11, lines 1-2). Similarly, two statements can be qualified as optimally shareable if they are likely to have the same or very similar execution plans, without significant sacrifice to perform when sharing cursors (see Applicant's specification page 11, lines 3-5). Whereas, a pair of similar statements is considered non-shareable if sharing a cursor compiled for one of the statement would produce incorrect

Art Unit: 2162

result if shared by the other, so a such a Non-shareable statement do not share a cursor unless a complete syntax of the statements is textually identical (See Applicant's specification page 14, lines 6-19). Using the above detailed information, it is impossible to one having ordinary skill in the art to determine whether a first SQL text is *optimally shareable, sub-optimally shareable, or non-shareable* using the receiving database statement from the client when the above mentioned set forth, at least a pair of database statements is required in order to perform the execution plan for similar database statements. As detail in the specification (pages 15-17), in determining, the system and method for execution plan sharing, one must, first analyzing whether the SQL text of the two similar statement is non-shareable; second determining whether the similar SQL statements are sub-optimally shareable. If the statements are sub optimally shareable, then the cursor-sharing parameter is set to FORCE. If the statements are sub optimally shareable but cursor sharing is not set to FORCE, then a new cursor will by compiled for that SQL text. As a result the shared execution plan implements reuse by automatically replacing every SQL text literal with a bind variable

(H). Claim 22 recites "searching *memory* pool for a second SQL text similar to the first SQL text". It is unclear as to whether the applicant is referring to client memory or else. It is also unclear as to why one having ordinary skill in the art would have to search memory for similar SQL text, when the step of *determining if the first SQL text is optimally shareable, sub-optimally shareable, or non-shareable* is already use to perform the execution plan for similar database statements.



Art Unit: 2162

(I). Claims 27 and 32 recite “a computer readable medium having stored thereon one or more sequences of instructions for controlling execution of one or more processors, the one or more sequences of instructions comprising instructions for”. This recited language of the preamble does not perform what the body of the claims set forth. The body of the claims calls for the use of controlling cursor sharing.

(J). Claims 27 and 32 recite the claimed “*receiving a SQL text from a client; determining if the SQL text is optimally shareable, sub-optimally shareable, or non-shareable*”. It is important to note that present invention is directed to a method or system for sharing of execution plan for similar database statements. More specifically, two statements can be qualified as sub-optimally shareable statements if they only differ by a literal value and have very different execution plan (see Applicant’s specification page 11, lines 1-2). Similarly, two statements can be qualified as optimally shareable if they are likely to have the same or very similar execution plans, without significant sacrifice to perform when sharing cursors (see Applicant’s specification page 11, lines 3-5). Whereas, a pair of similar statements is considered non-shareable if sharing a cursor compiled for one of the statement would produce incorrect result if shared by the other, so a such a Non-shareable statement do not share a cursor unless a complete syntax of the statements is textually identical (See Applicant’s specification page 14, lines 6-19). Using the above detailed information, it is impossible to one having ordinary skill in the art to determine whether a SQL text is optimally shareable, sub-optimally shareable, or non-shareable using the receiving database statement from the client when the above mentioned set forth, at least a pair of database statements is required in order to perform the execution plan

Art Unit: 2162

for similar database statements. As detail in the specification (pages 15-17), in determining, the system and method for execution plan sharing, one must, first analyzing whether the SQL text of the two similar statement is non-shareable; second determining whether the similar SQL statements are sub-optimally shareable. If the statements are sub optimally shareable, then the cursor-sharing parameter is set to FORCE. If the statements are sub optimally shareable but cursor sharing is not set to FORCE, then a new cursor will by compiled for that SQL text. As a result the shared execution plan implements reuse by automatically replacing every SQL text literal with a bind variable.

(K). Claims 27 and 32 recite “searching memory for similar SQL text”. It is unclear as to whether the applicant is referring to client memory or else. It is also unclear as to why one having ordinary skill in the art would have to search memory for similar SQL text, when the step of *determining if the SQL text is optimally shareable, sub-optimally shareable, or non-shareable* is already use to perform the execution plan for similar database statements.

(L). Claims 27 and 32 recites “reusing a cursor compiled for said similar SQL text to execute said SQL text if said matching SQL text in found in said memory”. It is unclear to one having ordinary skill in the art to reusing a cursor compiled, when the specification (page 6) makes it clear the system and method for sharing of execution plans for similar database statements overcomes the conventional system has indicated in the background of the invention by reusing the execution plan of an existing cursor in a situation where a client issues a SQL statement similar to another SQL statement previously (see specification page 6, paragraph 3).

(M). Claims 58 and 62 recite “a system for cursor sharing”. Such a language of the preamble does not provide enough information (understand) to enable one having ordinary skill in the art to carry the steps of controlling cursor sharing set forth in the claims. Moreover, such a limitation of the preamble does not link to the body of the claim. The body of the claim is directed to the use of controlling cursor sharing, whereas, the preamble is directed to cursor sharing.

(N). Claims 58 and 62 recite the claimed “*means for accepting a SQL text from a client; means for determining if the SQL text is optimally shareable, sub-optimally shareable, or non-shareable*”. It is important to note that present invention is directed to a method or system for sharing of execution plan for similar database statements. More specifically, two statements can be qualified as sub-optimally shareable statements if they only differ by a literal value and have very different execution plan (see Applicant’s specification page 11, lines 1-2). Similarly, two statements can be qualified as optimally shareable if they are likely to have the same or very similar execution plans, without significant sacrifice to perform when sharing cursors (see Applicant’s specification page 11, lines 3-5). Whereas, a pair of similar statements is considered non-shareable if sharing a cursor compiled for one of the statement would produce incorrect result if shared by the other, so a such a Non-shareable statement do not share a cursor unless a complete syntax of the statements is textually identical (See Applicant’s specification page 14, lines 6-19). Using the above detailed information, it is impossible to one having ordinary skill in the art to determine whether a SQL text is optimally shareable, sub-optimally shareable, or

Art Unit: 2162

*non-shareable* using the receiving database statement from the client when the above mentioned set forth, at least a pair of database statements is required in order to perform the execution plan for similar database statements. As detail in the specification (pages 15-17), in determining, the system and method for execution plan sharing, one must, first analyzing whether the SQL text of the two similar statement is non-shareable; second determining whether the similar SQL statements are sub-optimally shareable. If the statements are sub optimally shareable, then the cursor-sharing parameter is set to FORCE. If the statements are sub optimally shareable but cursor sharing is not set to FORCE, then a new cursor will be compiled for that SQL text. As a result the shared execution plan implements reuse by automatically replacing every SQL text literal with a bind variable.

(O). Claims 58 and 62 recites “means for searching *memory* for similar SQL text”. It is unclear as to whether the applicant is referring to client memory or else. It is also unclear as to why one having ordinary skill in the art would have to search memory for similar SQL text, when the step of *determining if the SQL text is optimally shareable, sub-optimally shareable, or non-shareable* is already used to perform the execution plan for similar database statements.

*Applicant is advised to amend the claim to solve the 112-problem set forth in the office action.*

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 4-5, 8-13, 16-17, 20-22, 27, 32, 33, 36, 37, 40-44, 48, 50-58, 62-63 and 67-68 as best understood by the examiner are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al., (hereinafter "Chow") US Patent no. 5,875,334.

As to claim 1, Chow discloses the claimed "receiving a database statement from a client " by means of receive a query statement from a user (col.1, lines 63-67); "determining if the database statement is optimally shareable, sub-optimally shareable, or non-shareable" (col.2, lines 25-29; col.10, lines 54-67); and "searching memory for a similar database statement" by comparing the SQL3 control statements (col.2, lines 25-29; col.10, lines 54-67), wherein the REPEAT statements is similar to WHILE statements (col.12, lines 23-48). Chow does not explicitly disclose the use of reusing a data structure compiled for said similar database statement to

Art Unit: 2162

execute said database statement when a system parameter is configured to control data structure sharing. However, Chow discloses a V2 compiler, where the declaration and reference of a cursor is processed in a way which involves the collaboration between the pre-processor and SQL compiler is setup to control data structure sharing for subsequence operation (col.7, lines 50-67; col.32, lines 4-15; col.42, lines 13-52). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Show's system wherein the plan optimizer, provided therein (items 116 of fig.1) would incorporate the use of reusing a data structure because that would provide Chow's system the enhanced capability of compiling query statements and control statements, thereby eliminating redundant processing of database statements.

As to claim 4, Chow discloses the claimed "wherein reusing a data structure compiled for said similar database statement occurs when a command line parameter is configured to control data structure sharing" (col.6, lines 25-36; col.23, lines 36-67).

As to claim 5, Chow discloses the claimed "wherein the command line parameter is a hint for enabling a one-time system parameter override" (col.7, lines 50-67).

As to claim 8, Chow discloses the claimed "returning a result set to the client if said database statement is a query" (col.39, lines 35-45).

Art Unit: 2162

As to claim 9, Chow discloses the claimed “wherein reusing a data structure includes executing the execution plan compiled from said similar database statement” (col.23, lines 35-65).

As to claim 10, Chow discloses the claimed “wherein said data structure a cursor” (col.42, lines 14-34).

As to claim 11, Chow discloses the claimed “wherein said database statement and said similar database statement are SQL statement” (col.23, lines 35-65).

As to claims 12-13, 16-17 and 20-21, the limitations of claims 12-13, 16-17 and 20-21 have been mentioned in the rejection of claims 1, 4-5 and 8-11 above. They are therefore, rejected under the same rationale.

As to claims 22, 27, 32-33, 36-37 and 40-43, the limitations of claims 22, 27, 32-33, 36-37 and 40-43 have been mentioned in the rejection of claims 1, 4 and 8-11 above. They are therefore, rejected under the same rationale.

As to claims 44, 48 and 50-57, the limitations of claims 44, 48 and 50-57 have been mentioned in the rejection of claims 1, 4 and 8-11 above. They are therefore, rejected under the same rationale. In addition, Chow discloses the claimed “a parser for hard parsing the database statement” (col.7, lines 50-67; col.32, lines 4-15; col.42, lines 13-52); “building an expression tree from the database” (col.); and “a syntactic analyzer” (col.7, line 66-col.8, line 7).

Art Unit: 2162

As to claims 58, 62 and 67-68, the limitations of claims 58, 62 and 67-68 have been mentioned in the rejection of claims 1, 4 and 8-11 above. They are therefore, rejected under the same rationale.

### ***Allowable Subject Matter***

11. Claims 2-3, 6-7, 14-15, 18-19, 23-26, 28-31, 34-35, 38-39, 45-47, 49, 59-61 and 64-66 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 2-3, 6-7, 14-15, 18-19, 23-26, 28-31, 34-35, 38-39, 45-47, 49, 59-61 and 64-66 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean M. Corrielus whose telephone number is (571) 272-4032. The examiner can normally be reached on Monday - Friday (12:00pm - 7:30 pm).



Art Unit: 2162

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jean M. Corrielus

Patent Examiner

November 19, 2004